

PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

To:

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PCT

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY (PCT Rule 43bis.1)

Date of mailing
(day/month/year) see form PCT/ISA/210 (second sheet)

Applicant's or agent's file reference
see form PCT/ISA/220

FOR FURTHER ACTION

See paragraph 2 below

International application No.
PCT/JP2004/000118

International filing date (day/month/year)
09.01.2004

Priority date (day/month/year)
10.01.2003

International Patent Classification (IPC) or both national classification and IPC
H04L12/56

Applicant
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1. This opinion contains indications relating to the following items:

- Box No. I Basis of the opinion
- Box No. II Priority
- Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- Box No. IV Lack of unity of invention
- Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- Box No. VI Certain documents cited
- Box No. VII Certain defects in the international application
- Box No. VIII Certain observations on the international application

2. FURTHER ACTION

If a demand for international preliminary examination is made, this opinion will usually be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA"). However, this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of three months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

Name and mailing address of the ISA:



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Box No. I Basis of the opinion

1. With regard to the **language**, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.
 - This opinion has been established on the basis of a translation from the original language into the following language , which is the language of a translation furnished for the purposes of international search (under Rules 12.3 and 23.1(b)).
2. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:
 - a. type of material:
 - a sequence listing
 - table(s) related to the sequence listing
 - b. format of material:
 - in written format
 - in computer readable form
 - c. time of filing/furnishing:
 - contained in the international application as filed.
 - filed together with the international application in computer readable form.
 - furnished subsequently to this Authority for the purposes of search.
3. In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
4. Additional comments:

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.
PCT/JP2004/000118

Box No. II Priority

1. The following document has not been furnished:

- copy of the earlier application whose priority has been claimed (Rule 43bis.1 and 66.7(a)).
- translation of the earlier application whose priority has been claimed (Rule 43bis.1 and 66.7(b)).

Consequently it has not been possible to consider the validity of the priority claim. This opinion has nevertheless been established on the assumption that the relevant date is the claimed priority date.

2. This opinion has been established as if no priority had been claimed due to the fact that the priority claim has been found invalid (Rules 43bis.1 and 64.1). Thus for the purposes of this opinion, the international filing date indicated above is considered to be the relevant date.

3. Additional observations, if necessary:

Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability

The questions whether the claimed invention appears to be novel, to involve an inventive step (to be non-obvious), or to be industrially applicable have not been examined in respect of:

the entire international application,
 claims Nos. 2

because:

the said international application, or the said claims Nos. relate to the following subject matter which does not require an international preliminary examination (specify):
 the description, claims or drawings (*indicate particular elements below*) or said claims Nos. 2 are so unclear that no meaningful opinion could be formed (specify):

see separate sheet

the claims, or said claims Nos. are so inadequately supported by the description that no meaningful opinion could be formed.
 no international search report has been established for the whole application or for said claims Nos.
 the nucleotide and/or amino acid sequence listing does not comply with the standard provided for in Annex C of the Administrative Instructions in that:

the written form

has not been furnished
 does not comply with the standard

the computer readable form

has not been furnished
 does not comply with the standard

the tables related to the nucleotide and/or amino acid sequence listing, if in computer readable form only, do not comply with the technical requirements provided for in Annex C-bis of the Administrative Instructions.

See separate sheet for further details

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.
PCT/JP2004/000118

**Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or
industrial applicability; citations and explanations supporting such statement**

1. Statement

Novelty (N)	Yes: Claims	5-7,9-13,15-19
	No: Claims	1,3,4,8,14
Inventive step (IS)	Yes: Claims	13,16-19
	No: Claims	1,3-12,14,15
Industrial applicability (IA)	Yes: Claims	1-19
	No: Claims	

2. Citations and explanations

see separate sheet

Re Item III.

Although claims 1 and 2 have been drafted as separate independent claims, they appear to relate effectively to the same subject-matter and to differ from each other only with regard to the definition of the subject-matter for which protection is sought or in respect of the terminology used for the features of that subject-matter. The aforementioned claims therefore lack conciseness and as such do not meet the requirements of Article 6 PCT.

Therefore, no opinion for claim 2 with regard to novelty, inventive step and industrial applicability has been established.

Re Item V.

1. The following document is referred to in this communication:

D1.: WO 88/02959 A (BYDATEL CORP) 21 April 1988 (1988-04-21)

2. The present application does not meet the criteria of Article 33(1) PCT, because the subject-matter of independent claim 1 and 14 is not new in the sense of Article 33(2) PCT.
- 2.1 Using the wording of independent claim 1, document D1, which is regarded as being the closest prior art, discloses (the references in parenthesis applying to this document):

"Method for transmitting data stream via wireless medium for contention based medium access across a wireless network having a plurality of stations and an access point communicating to said stations via wireless medium (page 7, lines 20-26; figure 1), the method comprising:

- (I) performing a contention between the stations for wireless medium occupancy for a station to transmit data stream at a selective contention period (page 9, lines 1-4; figure 10);
- (ii) transmitting data stream from the contention successful station after the contention (page 9, lines 5-15; figure 10),
wherein the selective contention period is divided into two distinct periods as:
 - (a) contention medium occupancy period at which the stations contend for wireless medium occupancy for a station to transmit data stream (page 9, lines 1-4; figure 10); and
 - (b) prescheduled medium occupancy period at which a wireless medium

occupancy reservation for a contention successful station is prescheduled (page 9, lines 5-15; figure 10)."

Therefore, the subject-matter of independent claim 1 is not new.

2.2 Using the wording of independent claim 14, document D1, which is regarded as being the closest prior art, discloses (the references in parenthesis applying to this document):

"An access point communicating with a plurality of stations via wireless medium (page 7, lines 20-26; figure 1), the access point comprising:

a medium recorder unit which records:

(i) start and end period of contention medium occupancy period in which stations contend for wireless medium occupancy for a station to transmit data stream, wherein the contention medium occupancy period is included in a selective contention period (page 8, line 32-page 9, line 4; page 9, lines 16-17; page 10, lines 15-18; figure 10); and

(ii) start and end period of prescheduled medium occupancy period in which wireless medium occupancy is prescheduled, and transmission is performed according to the prescheduled wireless medium occupancy, wherein the prescheduled medium occupancy period is included in the selective contention period (page 9, line 38-page 10, line 14; page 11, lines 9-23; figure 10);

a controller unit which preschedules wireless medium occupancy reservation having a duration period for contention successful station in prescheduled medium occupancy period, and moves forward the start period of contention medium occupancy period of next selective contention period by the duration period (page 10, lines 3-14; page 11, lines 9-23; figure 10);

a transmitter unit which transmits a beacon signal including information for start period of the contention medium occupancy period to the stations (page 11, lines 18-23); and

a receiver unit which receives data stream transmitted from the station."

Therefore, the subject-matter of independent claim 14 is not new.

3. Dependent claims 3, 4 and 8 do not contain any features which, in combination with the features of any claim to which they refer, meet the requirements of the PCT in respect of novelty (Article 33(2) PCT):

- for claim 3: see page 11, lines 18-23 of document D1
- for claim 4: see figure 10 of document D1
- for claim 8: see page 10, lines 20-31 of document D1

4. Furthermore, dependent claims 5-7, 9-12 and 15 do not appear to contain any additional features which in combination with the features of any claim to which they refer, involve an inventive step for the reason that the subject-matter of said claims is either in principle directly derivable from the disclosure of document D1 (see page 9, line 38-page 10, line 19; page 11, lines 18-22 for claims 5 and 6; see page 9, line 38-page 10, line 7 for claim 7; see page 16, lines 25-38 for claims 9 and 15; see page 11, lines 18-23 for claims 10-12) or represents simple design details which are generally known to a person skilled in the art. Thus, dependent claims 5-7, 9-12 and 15 do not meet the requirements of Article 33(3) PCT.

5. The subject-matter of independent claims 13 and 16 and dependent claims 17-19 meets the requirements of Article 33(2) and (3) PCT.

5.1 The document D1 is regarded as being the closest prior art to the subject-matter of independent claim 13, and shows (the references in parentheses applying to this document):

a wireless network system comprising a plurality of stations and an access point communicating with the stations via wireless medium (page 7, lines 20-26; figure 1) wherein a selective contention period includes a contention medium occupancy period in which stations contend for wireless medium occupancy for a station to transmit data stream (page 9, lines 1-4; figure 10) and the start and end period of prescheduled medium occupancy period in which wireless medium occupancy is prescheduled (page 9, lines 5-15; figure 10), and transmission is performed according to the prescheduled wireless medium occupancy, wherein the prescheduled medium occupancy period is included in the selective contention period (page 9, lines 5-15; figure 10). A controller unit delays the start period of contention medium occupancy period of next selective contention period by the duration period of the data to be transmitted (page 10, lines 3-14; page 11, lines 9-23; figure 10). A transmitter unit transmits a beacon signal including information for start period of the contention medium occupancy period to the stations which is received by a receiver unit (page 11, lines 18-23).

5.2 The subject-matter of claim 13 differs from this known wireless network system from document D1 in that the receiver unit comprises a controller which monitors the

condition of wireless medium occupancy at every monitoring period among the start period and the end period of the contention medium occupancy period and then instructs the transmitter to transmit data stream when the controller unit confirms that wireless medium is not occupied. The receiver unit of document D1 (page 9, lines 1-4) monitors the contention medium occupancy period and then instruct the transmitter to make a Reservation Request transmission to indicate that it wishes to transmit data during the pre-scheduled medium occupancy period.

- 5.3 The problem to be solved by the present invention may be regarded as an inefficient use of the bandwidth in wireless network systems.
- 5.4 Independent claim 16 defines the equivalent features in terms of a station communicating with an access point to the corresponding wireless network system claim 13.
- 5.5 The subject-matter of independent claims 13 and 16 is therefore new (Article 33(2) PCT) and is considered as involving an inventive step (Article 33(3) PCT).
- 5.6 Claims 17-19 are dependent on claim 16 and as such also meet the requirements of the PCT with respect to novelty and inventive step.